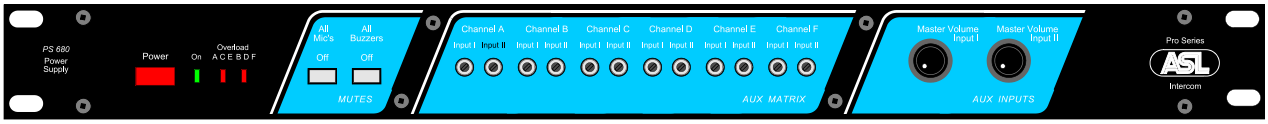
PS 680

SIX CHANNEL POWER SUPPLY

WITH AUX MATRIX



USER MANUAL

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1.0 SAFETY INSTRUCTIONS

Please always follow these instructions to help ensure against injury to yourself and/or damage to the system

1. Read all safety and operating instructions before you operate the apparatus.

2. Retain all safety and operating instructions for future reference.

3. Heed all warnings on the apparatus and in the safety and operating instructions and follow all installation and use instructions.

4. Follow all installation, operating and use instructions

5. Unplug the apparatus from the AC power outlet before cleaning. Use only a damp cloth for cleaning the exterior of the apparatus.

6. Do not use accessories or attachments not recommended by the manufacturer, as they may cause hazards and void the warranty.

7. Do not operate this apparatus in high humidity areas or expose it to water or moisture.

8. Do not place the apparatus on an unstable cart, stand, tripod, bracket or table. The apparatus may fall, causing serious personal injury and damage to the apparatus.

9. Do not block or cover any openings in the apparatus. These are provided for ventilation and protection from overheating. Never place the apparatus near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat. Do not place the apparatus in an enclosure such as a cabinet without proper ventilation.

10. Operate the apparatus using only the type of power source indicated on the marking label. Unplug the apparatus' power cord by gripping the power plug, not the cord.

11. Insert the plug properly. Do not defeat the safety purpose of the polarized or grounding-type plug. An American polarized AC line plug has two blades with one wider than the other. This plug will fit only one way into the power outlet. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug still fails to fit, contact an electrician to replace the obsolete outlet. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician to replace the obsolete outlet.

12. Route power supply cords so that they are not likely to be walked on or pinched by items placed upon or against them. Pay particular attention to cords at plugs, convenience receptacles, and the point where they exit from the apparatus.

13. Do not overload wall outlets or extension cords, as this can result in a risk of fire or electrical shock.

14. Unplug this apparatus during lightning storms or when unused for long periods of time.

15. Never insert objects of any kind into the apparatus through openings, as the objects may touch dangerous voltage points or short out parts. This could cause fire or electrical shock.

16. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as when the power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

2.0 GENERAL DESCRIPTION PS 680

The PS 680 is designed to be a six channel power supply in an ASL intercom system and can be used in portable as well as fixed applications.
It incorporates two adjustable auxiliary signal inputs and uses only 1U of 19" rack space. The unit is ideal for use in applications where standard microphone cable is available and ease of setup is of paramount importance.

Inside the unit are 2 switch mode power supply modules, which are fully protected and can together drive at least 20 Pro Series beltpacks or 10 Pro Series speaker stations (or a combination) operating at full power.

The Auxiliary Matrix:
On the rear panel of the PS 680 are 2 inputs for external audio signals, so-called 'auxiliary' or 'AUX' signals. Each AUX signal may be injected to each of the 6 intercom channels, with for each channel a volume control for each AUX signal. With master volume control knobs on the front panel the overall level of each AUX signal to the intercom channels may be adjusted. Each AUX input may be switched to either line or mic level. When mic level is selected, +30V phantom power is available at the referring AUX input connector.
Fully electronic switching increases reliability and allows for a Mic Mute and Buzzer Mute function:

- By pushing the "All Mics Off' button on the front panel the microphones of the stations connected to the PS 680 are muted. At each user station the microphone may be switched again by pushing a TALK button.
- By pushing the 'All buzzers Off' button on the front panel all buzzers of the stations connected to the PS 680 are muted. To abolish the 'all buzzers off' status of all these stations, this button has to be pushed again.

Remote Mute Control:
The Mic Mute and Buzzer Mute push buttons on the front panel of the PS 680 allow for sending these mute signals to all channels simultaneously. In case it is required that these signals can also be sent to each channel separately, an external switch box is needed which can be connected to a D-25 connector on the rear panel.

3.0 UNPACKING

The shipping carton contains the parts listed below:

- The PS 680
- Mains power cable
- Spare fuses

If any are missing, contact your dealer.

ASL has taken great care to ensure that this product reaches you in flawless condition.

After unpacking the unit please inspect for any physical damage to the unit, and retain the shipping carton and relevant packing materials for use should the unit need returning.
If any damage has occurred, please notify your dealer immediately so that a written claim can be initiated.
Please also refer to the warranty section of this manual.

4.0 MECHANICAL INSTALLATION

A vertical rack space of 1U (1.75"/ 44,5 mm) is required for the PS 680. It is not necessary to provide rear support by extra bracing or shelving.

Adequate ventilation must be provided by allowing sufficient space around the sides and rear of the unit to ensure free circulation of air.

Forced cooling is not required.

The power supply regulator is mounted on the rear of the unit. After a period of time it will feel hot to the touch. This is quite normal, and should be no cause for alarm.

5.0 WARRANTY

This unit is warranted by ASL Intercom to the original end-user purchaser against defects in workmanship and materials in its manufacture for a period of one year from the date of shipment to the end-user.

Faults arising from misuse, unauthorized modifications or accidents are not covered by this warranty. If the unit is faulty, it should be sent in its original packing to the supplier or your local ASL dealer, with shipping prepaid. A note must be included stating the faults found and a copy of the original suppliers invoice.

6.0 MAINS POWER

WARNING: This appliance must be earthed

The PS 680 may be connected to a mains power outlet of 100 - 240 Volts, 50 – 60 Hz, 150 watts. The outlet should have a clean earth. Avoid using mains outlets which also power dimmer controlled lighting equipment.
Fuse type for all voltages: T 1250

The wires in the mains lead are color coded in accordance with the following code:

Green-and-yellow:	Earth / safety ground
Blue:	Neutral
Brown:	Live

In case the colors of the wires in the mains lead do not correspond with the colored markings identifying the terminals in your plug, proceed as follows:

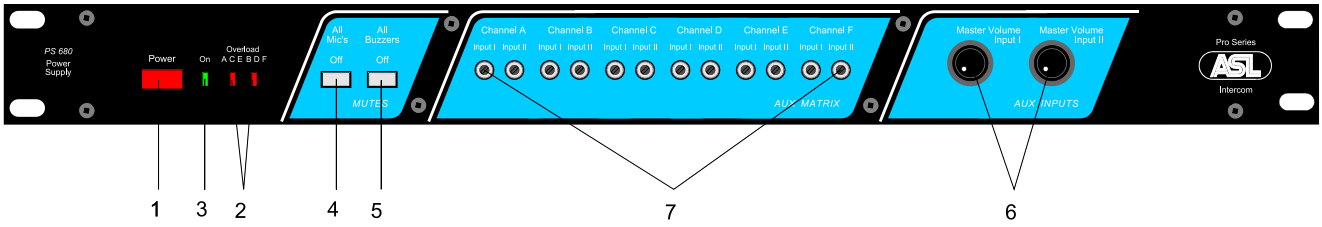
- The wire which is colored green-and-yellow must be connected to the terminal in the plug which is marked with the letter 'E', or by the earth symbol or colored green.
- The wire which is colored blue must be connected to the terminal which is marked with the letter 'N' or colored black.
- The wire which is colored brown must be connected to the terminal which is marked with the letter 'L' or colored red.

Safety Earth
The green-and-yellow wire of the mains cord must always be connected to the electrical installation safety earth or ground. It is essential for personal safety as well as for proper operation of the PS 680 and the connected user stations. This wire is internally connected to all exposed metal surfaces of the PS 680. Any rack framework into which this unit is mounted should be connected to the same grounding circuit.

Powering Up Procedure

- Make sure that the red power switch on the left side of the front panel is OFF.
- Connect the power cord to the rear of the station.
- Plug the other end of the power cord into a properly grounded mains outlet.
- Turn on the power with the red button. The red overload LED lights up for about 3 seconds and then extinguishes. Now the green power LED is lit, indicating the PS 680 is active

7.0 FRONT PANEL CONTROLS



1 POWER ON/OFF switch
Mains power push button for switching ON and OFF the internal power supplies

2 OVERLOAD LEDs
There is an overload LED for channel A, C and E (powered by PSU 1) and an overload LED for channel B, D and F (powered by PSU 2).
An overload LED illuminates if a circuit breaker has shut off the 30V DC line power due to overload.
A cause for overload can be too many user stations connected or a short-circuit in the interconnecting cables. The circuit breaker resets automatically 3 seconds after the cause of the overload has been removed, restoring the line power. During short-circuit the overload LED flashes every 3 seconds. Every time mains power is switched on the LED is lit for a few seconds.

3 POWER LED
This LED illuminates if line power is supplied by the internal power supply

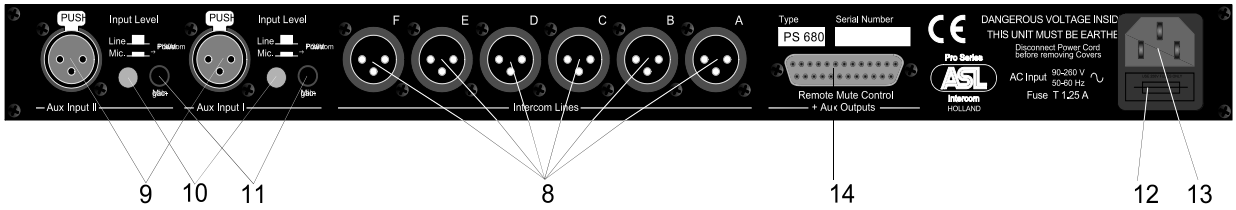
4 ALL MICS ON/OFF button
With this push button all microphones of the connected stations can be muted

5 ALL BUZZERS ON/OFF button
With this push button all buzzers of the connected stations can be muted

6 AUX MASTER VOLUME control knobs
These knobs adjust the level of each aux input signal to the intercom lines

7 AUX MATRIX trimmers
These trimmers control the volume of each AUX input signal as sent to each channel A - F

8.0 REAR PANEL CONTROLS & CONNECTORS



8 LINE connectors A - F

These XLR-3 connectors are for connecting the 8 intercom party lines (standard microphone cable)

Pin assignments :
pin 1: 0V / ground shield
pin 2: +30V power wire
pin 3: audio wire

9 AUX INPUT connectors

These two XLR-3 Aux inputs are electronically balanced and accept audio levels between –18dBu to +22dBu on line level and –38dBu to +2dBu on mic level.

Pin assignments :
pin 1: 0V / ground
pin 2: signal +
pin 3: signal -

10 MIC / LINE switches

With these switches Line level or Mic level for each AUX input can be selected. When mic level is selected, a +30V DC phantom power is supplied to pins 2 and 3 of the AUX input connector.

11 MIC GAIN trimmers

These trimmers adjust the sensitivity of the AUX input when mic level is selected.

12 FUSE holder

The fuse protects the PS 680 against severe internal damage, in case of malfunction of the internal power supplies.

Before replacing the fuse the mains cord must be removed. The fuse has to be T 1250 mA for all mains voltages 100 – 240V AC.

13 MAINS inlet

IEC Mains connector. For correct wiring see section 6.0.

14 REMOTE MUTE CONTROL + AUX OUTPUTS connector

The Mic Mute and Buzzer Mute push buttons on the front panel of the PS 680 allow for sending these mute signals to all channels simultaneously.
In case it is required that these mute signals can also be sent to each channel separately, an external switch box is needed which may be connected to this D25 connector.

Using this switch box Mic or Buzzer mute signals can be sent to all channels simultaneously OR to each channel separately.

To activate a mic of buzzer mute, the switch box connects the required pins of the D-25 connector to ground. See D-25 pin layout below.

The external switch box is made to order. Specific requirements of the user as far as for instance type of switches can be fulfilled.

On the D-25 connector are also available the unbalanced AUX signals, on pin 2 and 3. It concerns the pre-amplified signals taken after the AUX master volume controls (#6) before they are sent to the Aux matrix. Use high impedance loads only (minimum 20 kΩ); lower loads may disrupt the AUX signals to the intercom lines.

Pin layout of the D-25 connector:

1	Ground (0V)
2	Unbalanced AUX signal 2
3	Unbalanced AUX signal 1
4	+30V DC (max. load 1A)
5	+30V DC (max. load 1A)
6	+9V DC (max. load 50 mA)
7	Mic mute all channels
8	Mic mute channel F
9	Mic mute channel E
10	Mic mute channel D
11	Mic mute channel C
12	Mic mute channel B
13	Mic mute channel A
14	Ground (0V)
15	Ground (0V)
16	Ground (0V)
17	not used
18	not used
19	Buzzer mute all channels
20	Buzzer mute channel A
21	Buzzer mute channel B
22	Buzzer mute channel C
23	Buzzer mute channel D
24	Buzzer mute channel E
25	Buzzer mute channel F

Please note that the +9V DC supply is NOT short-circuit protected !

9.0 PARTY LINE, TECHNICAL CONCEPT

User stations in an ASL intercom system are connected via one or several 'party lines'. A party line offers two way (‘full duplex’) communication and consists of standard microphone (multi-pair) cable. One wire is used as an audio line, one as a power line and the screen of the cable functions as earth/return.
Current drive is used for signal transfer. Each station utilizes a current amplifier to amplify the microphone signal and place it on the common audio line where, due to the constant line impedance (situated in the power supply between XLR pin 3 and 1), a signal voltage is developed which can be further amplified and sent to the headphones or loudspeakers.

This principle has three advantages:

- the use of a single audio line allows several stations to talk and listen simultaneously
- due to the high bridging impedance offered by each station, the number of stations on the party line has no influence on the level of the communications signal
- power and audio to the intercom stations use the same cable

The Call signal is also sent as a current on the audio line. It develops a DC potential over the line impedance which will be sensed by each station and interpreted as a Call signal.

10.0 CABLING

The intercom line connectors are of the XLR-3 type. Audio and Call signals are on pin 3, DC power is on pin 2 and pin 1 is connected to the shield of the cable which functions as the common return for audio and power.

The audio signal is transferred in an unbalanced way (see ‘Party Line, Technical Concept’).
To avoid earth loops (hum), the possible effect of electromagnetic fields and to minimize power loss, certain rules have to be obeyed when installing the cabling of an intercom system :

Use high quality cable
Use high quality microphone cable (shielded two conductor cable, minimum 2x 0.30 mm2).
In case multi-pair microphone cable is used, it should be of high quality and each pair should consist of two conductors (minimum 2x 0.15 mm2) with separate shield and an overall shield.

Use flexible cable
Use flexible single and multi-pair microphone cable instead of cable with solid cores, especially when the cable is subjected to bending during operation or installation.

Cable screens to XLR pin 1
The screen of each separate microphone cable and/or the screen of each single pair in a multi-pair cable, should be connected to pin 1 of each XLR-3 connector. Do not connect these screens to the metal housing of ASL unitst or XLR-3 wall boxes. See section ‘Earthing Concept’.

Connect metal cable trunks, wall boxes and overall multi-pair cable screens to clean earth
Metal cable trunks, metal wall boxes and overall multi-pair cable screens should be interconnected and, at the 'central earth point' in the intercom network only, be connected to a clean earth or a safety earth. (see section ‘Earthing Concept’).

Keep metal connection boxes and cable trunks or pipes isolated from other metal parts
Metal trunks or pipes for intercom cables and metal connection boxes should be mounted in such a way that they are isolated from any other metal housing or construction part.

Keep cables parallel as much as possible
When two (multi channel) units in a network are connected by more than one cable, make sure that these cables are parallel to each other over the whole distance between those units. When using multi-pair cable, parallelism is ensured in the best possible way.

Avoid closed loops
Always avoid that intercom cables are making a closed loop. So-called 'ring intercom' should not physically be cabled as a ring..

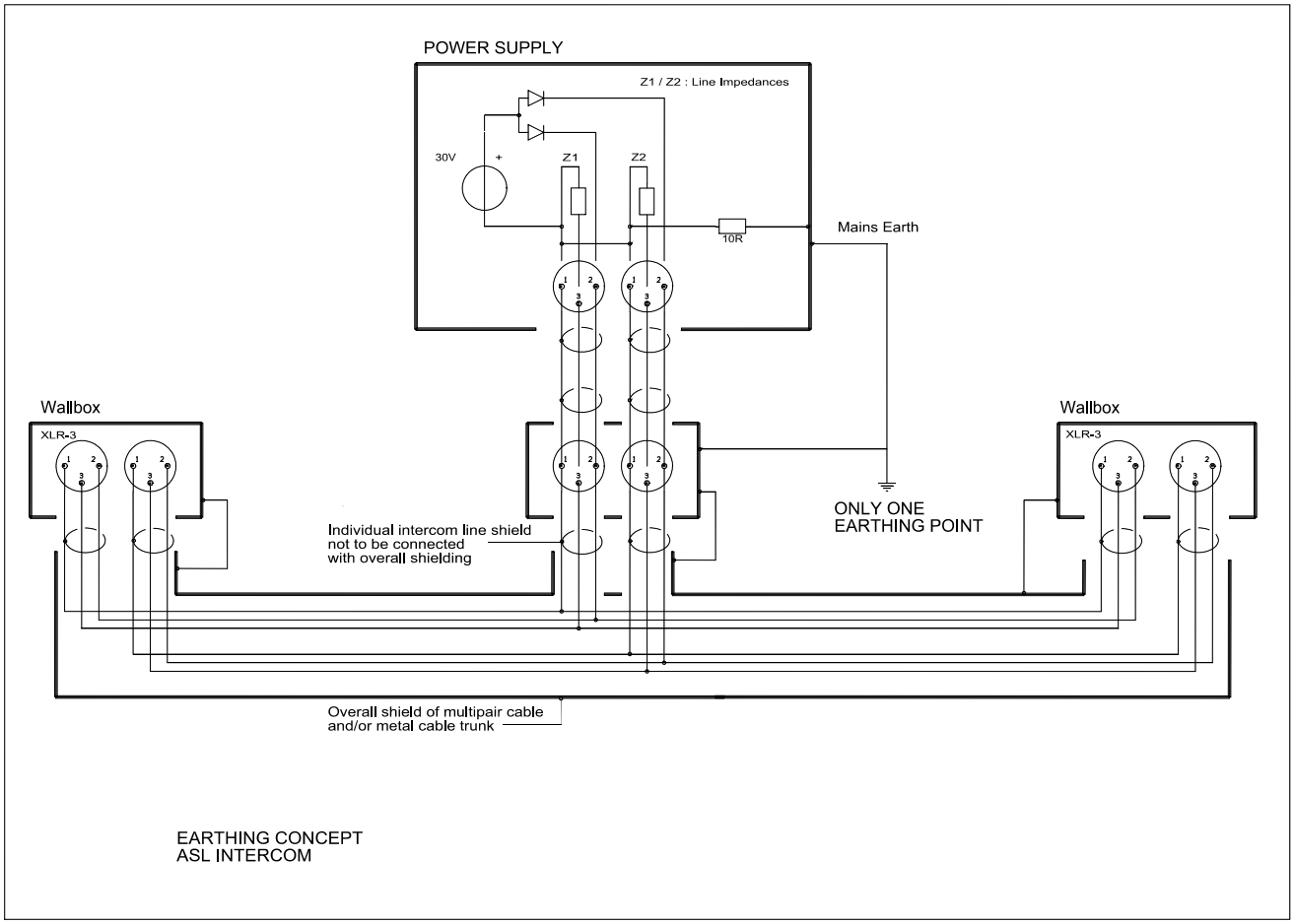
Keep cables away from electromagnetic sources
Keep intercom cables away from high energy cables, e.g. 115/230/400V mains power or dimmer controlled feeds for spotlights. Intercom cables should cross high energy cables at an angle of 90º only. Intercom cables should never be in the same trunks as energy cables.

Place power supply in a central position
In case of a system powered by a separate power supply: In order to diminish power losses, place the power supply as close as possible to where most power consumption occurs, in other words most user stations are placed.

ASL powered units to a 'clean' mains outlet
Master stations or power supplies should be connected to a mains outlet with a clean earth. Other audio equipment may be connected to this mains outlet, but avoid using an outlet which also powers dimmer controlled lighting systems.

In case of more complex installations, don't hesitate to contact us for advice.

11.0 EARTHING CONCEPT



12.0 TECHNICAL SPECIFICATIONS PS 680

System
dynamic range: 80 dB (1 kHz, THD < 1%)
call signal (send): +2.8 mA
call signal threshold (receive): +2.4V DC
supply voltage: +30 V DC (12 V to 32 V)
power interrupt time (mic mute): 0.1 sec

Intercom Line
line impedance: 350 Ω (1kHz), 2.2 kΩ (DC)
audio level: nom. –18 dBu, max. +4 dBu

Switch Mode Power Supplies
mains voltage range: 90 – 240 V AC, 50 - 60Hz
DC output voltage: +30V DC (+/- 5%)
ripple and noise: < 11 mV rms
max. output power: 2x 45 watt
circuit-breaker delay time: 0.2 sec.
automatic reset time: 3.0 sec.

Aux Inputs
Input impedance:
30 kΩ (balanced line level)
4.6 kΩ (balanced mic level)
nominal input level:
-18 dBu to +6 dBu (line level)
-38 dBu to –14 dBu (mic level)
max. input level:
+22 dBu (line level)
+2 dBu (mic level)
phantom power +30 V DC (mic level selected)

Dimensions & Weight
Width: 19" (483mm)
Height: 1U (44.5mm)
Depth: 250mm
Weight: 2 Kg

0 dBu defined as 775 mV into open circuit

ASL reserves the right to alter specifications without prior notice

13.0 SYSTEM CONFIGURATION